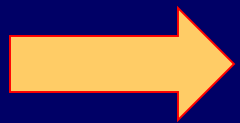# Firm Valuation Models … FCF Approach Continues

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Basic FCF Model

- Value of Firm
  - Use CF of Firm and WACC as discounting rate
- Value of Equity
  - Use CF to Firm's Equity and Cost of Equity as discounting rate

Modifications for …

- Firms in trouble
  - Estimate cash flow until they turn positive
- Cyclical Firms
  - FCF are usually smoothened out
- Firms with unutilized assets
  - Get the value of these assets externally and add

FCF Model ... Complications

- Firms with patents and product options
  - As above [or] real options pricing model
- Firms in the process of restructuring
  - Adjust CF to reflect business restructuring and discount rate to reflect financial restructuring
- Firms involved in acquisitions
  - (a) incorporate in FCF's; and (b) incorporate in risk
- Private firms:
  - Take riskiness of comparable firms that are publicly traded [or] relate the measure of risk to accounting variables

Why Estimates Usually Go Wrong?

Sources of uncertainty (by Aswath Damodaran)

- Our estimates of value can be wrong for a number of reasons (divided into three groups):

  1. <u>Estimation uncertainty</u>: Errors while converting raw information into inputs and use these inputs in models (common in valuing young technology company)

  2. <u>Firm-specific uncertainty</u>: The path that we envision for the firm can prove to be hopelessly wrong. (common in valuing young technology company)

  3. <u>Macroeconomic uncertainty</u>: Macroeconomic environment can change in unpredictable ways (common in mature cyclical or commodity company)

Good Responses to Uncertainty

Healthy responses to uncertainty would include:

- Better valuation models
- Valuation ranges
- Probabilistic statements
- The principle of parsimony helps

Unhealthy responses to uncertainty would include:

- Passing the buck
- Giving up on fundamentals (and going for day dreaming or technical analysis)

Special Situations: Valuing a New Firm

South Asian Petrochem Limited			
Times Interest Earned	1.76 take default spread as 5.5%, interest cost = 13.6%		
Market Value of Debt	343.45		
Market Value of Equity	190.00		
Cost of Debt	11.22%	8.57% (second phase)	
Cost of Equity (Beta 1.0)	13.65%	13.65% (second phase)	
Cost of Capital	12.09%	11.62% (assume debt of 40% in second phase)	

FCFF Background Computations	2006	2005	2004	
EBIT X (1 - Tax Rate)	47	45	31	
Capital Spending - Depreciation	14	5		
Working Capital	268	177	92	27.3%
Change in Non-Cash Working Capital	91	85		

Yearly FCFF	2007	2007	2008	2009
Two Stage Growth Assumptions		20%	20%	5%
EBIT X (1 - Tax Rate)	47	56	68	55
Less (Capital Spending - Depreciation)		15	16	2
Less Change in Working Capital		13	16	15
FCFF Estimates		28.83	35.52	37.95
Terminal Value			573.24	
Present Value		26	485	
Value of Operating Assets	510			
Less: Debt	343			
Value of Equity	167			
Value of Equity Per Share	8.73			

Special Situations: Valuing a Loss Making Cyclical Firm

- Cyclical sectors
    - Path 1: Adjust the growth rate to reflect the economic cycle
    - Path 2: Use normalized earnings as base year earnings

Moser Baer (I) Limited			
Sales CAGR	15.9%		
Growth Estimate	16% for 3 years (first phase) and then 7%		
Cost of Equity	9.99%	11.99%	
Average PAT	162 Sales CAGR		
Normalized EPS	14.53		
(Capital Spending - Depreciation)	7.93	12.01	47.48
DE Ratio	45%	45%	43%
working capital/ revenue ratio	51%		

Special Situations: Valuing a Loss Making Cyclical Firm

Moser Baer (I) Limited	2007	2008	2009	2010
Projected Revenue	2009.02	2330.46	2703.33	2892.56
Estimated EPS	16.85	19.55	22.67	24.26
less (Capital Spending - Depreciation) (1-DE)	4.58	2.64	1.53	0.90
less (Change in working capital)(1-DE)	6.97	8.09	9.38	10.96
FCFE	5.30	8.82	11.77	248.44
Present Value	4.82	7.29	8.84	186.65
Intrinsic Value	207.60			

Attempting to Unlock Value

- Many ways …
- Say, using simulation (or heuristics)
- For, example based on Financial Leverage
  - You can give it a try on your assignment …
- Experiment with different DE ratios
- Compute levered beta
- Compute unlevered beta
- Compute the cost of equity at different levels of leverage
- Similarly, compute the cost of debt at different levels of DE ratios
- Combine and compute WACC
- Note, assume marginal tax rates & be realistic …